

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DONALD A. POWELL
and SUSAN V. BAGEN

Appeal No. 1997-1530
Application 08/485,198

ON BRIEF

Before BARRETT, RUGGIERO and LEVY, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal from the final rejection of claims 16-25. Claims 1-15 and 26-54 have been canceled. An amendment after final rejection filed July 22, 1996 was

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denied entry by the Examiner.

The disclosed invention relates to an interconnect structure for electrically connecting an infrared detector to external circuitry. More particularly, the interconnect structure includes alternating layers of insulating and conductive materials with vias formed in the insulating layers to provide electrical connections between the conductive layers and bond pad terminations. At page 7 of the specification, Appellants indicate that once the formation of the interconnect structure is complete, it can be removed from the processing substrate to provide a freestanding interconnect.

Claim 16 is illustrative of the invention and reads as follows:

16. A freestanding interconnect comprising:

(a) a freestanding first electrically insulating layer previously formed on a substrate, said first layer being of a material having a coefficient of thermal expansion substantially the same as said substrate;

(b) an electrically conductive pattern on said first electrically insulating layer;

(c) a second electrically insulating layer of material having the same thermal properties as said first layer and adherent to said first layer; and

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(d) vias disposed in said second layer extending to said pattern having an electrically conductive material therein extending to said pattern.

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The Examiner relies on the following prior art:

Watanabe et al. (Watanabe)	4,920,406	Apr. 24,
1990		
Hornbeck	5,021,663	Jun. 04,
1991		

Claims 16-25 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over Hornbeck in view of Watanabe.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the Briefs¹ and Answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the Examiner and the evidence of obviousness relied upon by the Examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, Appellants' arguments set forth in the Briefs along with the Examiner's rationale in support of the rejection and arguments in rebuttal set forth in the Examiner's Answer.

¹The Appeal Brief was filed August 16, 1996. In response to the Examiner's Answer dated December 13, 1996, a Reply Brief was filed January 14, 1997 which was acknowledged and entered by the Examiner without further comment on January 28, 1997.

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It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the

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particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 16-25. Accordingly, we reverse.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill

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in

the art. Uniroyal Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044,
1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S.
825

(1988); Ashland Oil, Inc. v. Delta Resins & Refractories,
Inc.,

776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert.
denied, 475 U.S. 1017 (1986); ACS Hospital Systems, Inc. v.
Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933
(Fed.

Cir. 1984). These showings by the Examiner are an essential
part

of complying with the burden of presenting a prima facie case
of

obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24
USPQ2d

1443, 1444 (Fed. Cir. 1992).

After careful review of the applied art in light of the
arguments of record, it is our view that the Examiner has not
established a prima facie case of obviousness. In addressing

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the language of appealed independent claim 16, the Examiner points to insulating layers 190, 196 in Hornbeck as corresponding to the claimed first and second insulating layers. In making this assertion, the Examiner (Answer, page 5) has disregarded the claim language "a freestanding first electrically insulating layer previously formed on a substrate", contending that, as a product-by-process limitation, it is not entitled to be given weight in determining patentability of a claim to a final product. We note that the Examiner is correct to the extent that, often, in a claim drawn to structure, the process by which elements of the end structure are made would not be considered limiting. It is equally true, however, that claim language cannot be considered in isolation but, rather, must be interpreted in the context of the claim as a whole. In the language of present appealed claim 16, the product-by-process limitation discussed above is followed by the clause:

said first layer being of a material having a
coefficient of thermal expansion substantially
the same as said substrate; ...

This language, by reference to the substrate, serves to limit

the structure of the first electrically insulating layer. Our review of the Hornbeck and Watanabe references reveals no "first electrically insulating layer" which would meet the specific limitations set forth in claim 16.

Similarly, we find no disclosure in Hornbeck, or for that matter in Watanabe, which would meet the claimed requirement of a second electrically insulating layer which is "adherent to said first layer." We do note that the insulating layers 190, 196 in Hornbeck, referred to by the Examiner, are shown as adhering to each other over at least a portion of their length in the illustration in Hornbeck's Figure 8g. However, it is apparent from the disclosure of Hornbeck that, in the formation of the final infrared detector structure in which the resistor stack 144 is suspended over the substrate 142, the insulating layer 196 is removed. We refer to column 10, lines 9-12 of Hornbeck which states:

Plasma ash [sic, etch] the third and fourth
photoresist layers 204 and 208 together with the
polyimide layer
196. This completes the chips except for bonding
and packaging.

It is our opinion that, absent any line of reasoning on the

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record by the Examiner that any intermediate structure
produced by the process steps in Hornbeck should be considered
in

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addressing the claimed structure, no adhering insulating layers exist in the infrared detector disclosure of Hornbeck.

As a final commentary, we have reviewed the Watanabe reference offered by the Examiner in combination with Hornbeck as the basis for the obvious rejection. We find nothing in Watanabe which adds to the disclosure of Hornbeck nor anything which would overcome the deficiencies of Hornbeck discussed supra. It is our view that, even assuming arguendo that the references could be combined as suggested by the Examiner, any resulting combination would fall well short of the specific requirements set forth in the claims on appeal.

Since all of the claim limitations are not taught or suggested by the applied prior art, it is our opinion that the Examiner has not established a prima facie case of obviousness with respect to the claims on appeal. Accordingly, we do not sustain the Examiner's 35 U.S.C. § 103 rejection of independent

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claim 16, nor of claims 17-25 dependent thereon. Therefore,
the Examiner's decision rejecting claims 16-25 is reversed.

REVERSED

	LEE E. BARRETT)	
	Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
	JOSEPH F. RUGGIERO)	APPEALS
	Administrative Patent Judge)	AND
)	
INTERFERENCES)	
)	
)	
	STUART S. LEVY))
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